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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/079,291	02/19/2002	Kazuya Ono	NIKOP028, PA0440, 00/0464	6613
22434	7590	06/17/2004	EXAMINER	
BEYER WEAVER & THOMAS LLP P.O. BOX 778 BERKELEY, CA 94704-0778			MILLER, PATRICK L	
			ART UNIT	PAPER NUMBER
			2837	

DATE MAILED: 06/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/079,291	ONO ET AL.	
	Examiner	Art Unit	
	Patrick Miller	2837	

-- *Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --*
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 and 16-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 14, 16-24, 27-29, 32 and 33 is/are rejected.
- 7) ☒ Claim(s) 12, 13, 25, 26, 30 and 31 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>04292004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Based on a different interpretation of Watanabe et al (5,765,800) and a newly found reference to Kanemitsu (JP-02266134), the Examiner has found support to reject the claims that have been amended to include an airtight pressurized bellows. The Examiner regrets the initial indication of allowability.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 14, 27, and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Watanabe et al (5,765,800).
 - Watanabe et al disclose an apparatus and method for providing support between a first structure (fig. 3, #10) and a second structure (fig. 3, #12), comprising: providing a supporting member mounted to the first and second structures (fig. 3, #'s 11 and 15), the supporting member having positive stiffness with respect to a direction that differs from a support direction of the apparatus (col. ¾, lines 51-67/1-38), a first section having at least one magnetic member, the first section being coupled to the first structure (fig. 3, portion of #15 attached to #10); and a second section having at least one magnetic member and the second section is coupled to the second structure (fig. 3, portion of #15 attached to #12); wherein the first and second sections present negative stiffness in a lateral direction

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perpendicular to the support direction cause by the magnetic force (col. 5, lines 13-26); and wherein the supporting member has a bellow that includes an airtight cavity, and the airtight cavity is pressurized (fig. 3, #11).

- With respect to claims 27 and 28, Watanabe et al disclose using the vibration damping apparatus during semiconductor fabrication. This includes making an object using a lithography process and patterning a wafer (col. 1, lines 5-12).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 3-11, 14, and 16-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kanemitsu (JP-02266134) in view of Watanabe et al (5,765,800).

- Kanemitsu discloses an apparatus and method for providing support between a first structure (fig. 1, #1) and a second structure (fig. 1, #2), comprising: providing a supporting member mounted to the first and second structures (fig. 1, #3), the supporting member having positive stiffness with respect to a direction that differs from a support direction of the apparatus (abstract), a first section having at least one magnetic member, the first section being coupled to the first structure (fig. 1, # 13 has #14); and a second section having at least one magnetic member and the second section is coupled to the second structure (fig. 1, #18 has #'s 17, 19, and 20); wherein the first and second sections present negative stiffness in a lateral direction perpendicular to the support

direction cause by the magnetic force (abstract); and wherein the supporting member has a bellow that includes an airtight cavity (fig. 1, #4).

- With respect to claims 1, 4, 14, and 17, Kanemitsu does not disclose the airtight cavity being pressurized and a pressurizing mechanism that controls pressure within the cavity of the bellow.
- Watanabe et al disclose an air-spring that is pressurized (fig. 3, #11) by a pressurizing mechanism (fig. 3, #4). The motivation to use a pressurized air-spring is to provide the advantage of vertical positioning (col. 5, lines 39-50).
- Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the air-spring of Kanemitsu so that it is pressurized, thereby providing the advantage of being able to position or adjust the device being supported in a vertical direction, as taught by Watanabe et al.
- With respect to claims 3 and 16, Kanemitsu discloses the first and second sections are mounted within the cavity of the bellow (fig. 1, #4 encompasses first and second sections).
- With respect to claims 5 and 18, Kanemitsu discloses the first section has a first cylindrical magnetic member, the second section has a second cylindrical member, and the first and second cylindrical magnetic members face each other at an end thereof in the neutral position (fig. 1, #14 faces #'s 19 and 20, even though they do not "work" together; see also figs. 2 and 3).

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- With respect to claims 6, 8, 19, and 21, Kanemitsu discloses the first and second cylindrical magnetic members include a retentive magnetic material (fig. 1, #'s 19 and 20 and #14).
 - With respect to claims 7 and 20, Kanemitsu discloses the first section has a first cylindrical magnetic member (fig. 1, #14; see also fig. 2), the second section has a second cylindrical magnetic member (fig. 1, #'s 16 and 17; see also fig. 2), and the first magnetic member is provided within the second cylindrical magnetic member (fig. 1, #14 within #'s 16 and 17).
 - With respect to claims 9 and 22, Kanemitsu discloses the first magnetic member including a retentive magnetic material (fig. 1, #14) and the second magnetic member including a non-retentive magnetic material (fig. 1, #16).
 - With respect to claims 10 and 23, Kanemitsu discloses the first section has a first cylindrical magnetic member (fig. 1, #14), the second section has second and third magnetic members (fig. 1, #16 and #19), and the first magnetic member is within the second and third magnetic members (fig. 1, #14 within #'s 16 and 19).
 - With respect to claims 11 and 24, Kanemitsu discloses the first magnetic member including a retentive magnetic material (fig. 1, #14), and the second and third magnetic members including a non-retentive material (fig. 1, #16 and #20 are "excited" by coils).
4. Claims 29, 32, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al (5,765,800) in view of Ono (5,780,943).
- Watanabe et al disclose an apparatus and method that can be used in a semiconductor fabrication apparatus, which would include a lithography system, and where in the

apparatus and method provide support between a first structure (fig. 3, #10) and a second structure (fig. 3, #12), and comprise: providing a supporting member mounted to the first and second structures (fig. 3, #'s 11 and 15), the supporting member having positive stiffness with respect to a direction that differs from a support direction of the apparatus (col. 3/4, lines 51-67/1-38), a first section having at least one magnetic member, the first section being coupled to the first structure (fig. 3, portion of #15 attached to #10); and a second section having at least one magnetic member and the second section is coupled to the second structure (fig. 3, portion of #15 attached to #12); wherein the first and second sections present negative stiffness in a lateral direction perpendicular to the support direction cause by the magnetic force (col. 5, lines 13-26); and wherein the supporting member has a bellow that includes an airtight cavity, and the airtight cavity is pressurized (fig. 3, #11).

- Watanabe et al do not disclose the lithography system comprising an illumination system that irradiates radiant energy and a positioning apparatus that disposes a substrate on a path of the radiant energy. With respect to claims 32 and 33, Watanabe et al do not disclose an object manufactured with a lithography system and a wafer on which the lithography system can form an image.
- Ono disclose a lithography system (col. 1, lines 15-16) that has an illumination system that irradiates radiant energy (col. 5, lines 5-7) and a positioning apparatus that disposes a substrate on a path of the radiant energy (col. 5, lines 7-33). Ono also discloses an object that is a wafer on which an image has been formed (col. 5, lines 1-10). It would be obvious to one having ordinary skill in the art at the time of the invention that a

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lithography system as described by Ono, could be used with the vibration damping apparatus of Watanabe et al. This would provide the advantage of accurately positioning and vibration damping during the lithography process.

- Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention that the vibration damping device of Watanabe et al could be used to position and dampen vibrations in a lithography system, and that the lithography system could be implemented with the apparatus of Watanabe et al.
- With respect to claims 32 and 33,

Allowable Subject Matter

5. Claims 12, 13, 25, 26, 30, and 31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
 - With respect to claims 12 and 25, the Prior Art does not disclose a supporting apparatus and method with the limitations of claims 1 and 14, where the second section has second, third, fourth, and fifth cylindrical magnetic members, and the first cylindrical magnetic members are within the second, third, fourth, and fifth magnetic members.
 - With respect to claim 30, the Prior Art discloses lithography systems with actuators and lithography systems with bellows that receive pressurized air; however, the Prior Art does not disclose lithography systems with the limitations of claim 29, and specifically, with an *airtight bellow that has a pressurized cavity* used in conjunction with an actuator, wherein the driving force of the actuator and a support force by the system lie on substantially the same axis.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick Miller whose telephone number is 571-272-2070. The examiner can normally be reached on M-F, 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Martin can be reached on 571-272-2800 ext 41. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9318.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-3431.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patrick Miller
Examiner
Art Unit 2837

pm
June 10, 2004


Bentsu Ro
Primary Examiner